

REMARKS

These remarks respond to the Office Action mailed February 8, 2005. Claims 1-19 are pending in the application. In the Office Action, the Examiner allowed claims 11-19, objected to claims 4 and 10 as based on a rejected base claim, and rejected claims 1-3 and 5-9.

In The Specification

The Examiner rejected the Abstract of the Disclosure as improper. The Abstract has been amended to overcome this rejection.

Claim Rejections - 35 U.S.C. § 102

Claims 1-3 and 5-9 were rejected under § 102 as anticipated by U.S. Patent No. 6,044,548 to Distefano.

Distefano discloses placing a finished connection component onto a semi-conductor chip so that the bottom surface of the component has leads that match up with contacts on the semi-conductor chip. (Col. 11, lines 4-11.) The assembly is then subjected to pressure by squeezing it. (Col. 11, lines 21-24.) At the same time, the entire assembly is brought to an elevated temperature so that an adhesive contained between the connection component and semi-conductor chip forms a liquid phase and bonding metal at the interface between the connection component and a semi-conductor chip also forms a liquid phase. (Col. 11, lines 38-44.) The heat may be applied through platens which engage the outer surfaces of the chips. The heat may also be applied by preheating either the component or the semi-conductor chip. (Col. 11, lines 35-37.)

Claim 1 recites a method of bonding contact pads on a microelectronic element to conductive features on a connection component. The method of claim 1 specifically recites temporarily heating and cooling the microelectronic element so that the bonding material liquefies and forms bonds. The temporary heating and cooling steps are performed so that the

microelectronic element is at a higher temperature than the connection component during the formation of the bonds.

Nothing in Distefano has been pointed out as teaching the specific feature of temporarily heating and then cooling the microelectronic element so that the microelectronic element remains at a higher temperature than the connection component during the bond formation process. Distefano states no preference as to whether the microelectronic element should be hotter than the connection component when the two are assembled. However, even if the microelectronic element is initially hotter than the connection component, temperature equilibrium will be established between the microelectronic element and connection component once they are placed together. The method of claim 1 preserves the temperature differential between the microelectronic element and the connection component by temporarily heating the microelectronic element and then cooling it, so that there is insufficient time for temperature equilibrium during the bonding step. This is exemplified in the specification at paragraphs 0041-0042. Nothing in Distefano has been shown to disclose or suggest this element of claim 1.

Claim 5 recites a method of bonding microelectronic elements to components including providing a deformable barrier between the microelectronic elements and components. The working space is maintained at a total absolute pressure lower than the absolute pressure outside of the working space.

Nothing in Distefano has been pointed out as disclosing or suggesting use of a deformable barrier at least partially bounding a working space as recited in claim 5. Therefore, Distefano has not been shown to teach arranging such a barrier so that a pressure differential on such barrier urges said barrier into the working space and said barrier will urge "conductive features" on the microelectronic elements and components together as recited in claim 5. In the example

discussed in paragraph 0060 and depicted in Fig. 13, the pressure differential on the barrier urges the barrier toward the microelectronic elements 510, so that the barrier urges the microelectronic elements into engagement with the connection components 530. Distefano fails to disclose these elements of claim 5.

Claims 2-3 and 6-9 are believed to be patentable at least by virtue of their ultimate dependence on allowable independent claims 1 and 5, discussed above.

Conclusion

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are respectfully requested.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: May 9, 2005

Respectfully submitted,

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